What is claimed is:

1. A method of cleaning a semiconductor device comprising the steps of :

(i) mixing HF and ozone water in a vessel to form a solution of HF and ozone water; and

(ii) dipping a semiconductor device in the vessel containing the solution of HF and ozone water,

wherein the solution comprises about 0.034 to about 0.077 wt% HF.

2. The method of claim 1, wherein the solution of HF and ozone water comprises about 0.035 to about 0.075 wt% HF.

3. The method of claim 1, wherein the ozone water comprises about 5 to about 150 ppm ozone.

4. The method of claim 3, wherein the ozone water comprises about 15 to about 30 ppm ozone.

5. The method of claim 1, wherein in step (ii) the semiconductor device is dipped for a period between about 1 and about 30 minutes.

6. The method of claim 5, wherein the semiconductor device is dipped for a period of about 15 minutes.

7. The method of claim 1, whereby damaged layers and polymer residue are removed from the semiconductor device.

8. A method of cleaning a semiconductor device comprising the steps of :

(i) mixing HF and ozone water in a vessel to form a solution of HF and ozone water;

(ii) dipping a semiconductor device in the vessel containing the solution of HF and ozone water, and thereafter

(iii) introducing ozone water into the vessel to replace the solution of HF and ozone water in the vessel,

wherein the solution comprises about 0.034 to about 0.077 wt% HF.

9. The method of claim 8, wherein the solution of HF and ozone water comprises about 0.035 to about 0.075 wt% HF.

10. The method of claim 8, wherein the ozone water comprises about 5 to about 150 ppm ozone.

11. The method of claim 10, wherein the ozone water comprises about 15 to about 30 ppm ozone.

12. The method of claim 8, wherein in step (ii) the semiconductor device is dipped for a period between about 1 and about 30 minutes.

13. The method of claim 12, wherein the semiconductor device is dipped for a period of about 15 minutes.

14. The method of claim 8, wherein in step (iii) ozone water is flowed into the vessel thereby causing an overflow of the solution of HF and ozone water out of the vessel.

15. The method of claim 14, wherein the ozone water is flowed into the vessel thereby causing the overflow of the solution of HF and ozone water out of the vessel for a period between about 1 and about 30 minutes.

16. The method of claim15, wherein the period is about 20 minutes.

17. The method of claim 8, whereby damaged layers and polymer residue are removed from the semiconductor device.

18. A method of cleaning a semiconductor device comprising the steps of :

(i) introducing HF and ozone water into a vessel to form a solution of HF and ozone water;

(ii) mixing the HF and ozone water in the vessel to form a uniform solution of HF and ozone water; and

(iii) dipping a semiconductor device in the vessel containing the uniform solution of HF and ozone water.

19. The method of claim 18, wherein the solution comprises about 0.034 to about 0.077 wt% HF.

20. The method of claim 19, wherein the solution of HF and ozone water comprises about 0.035 to about 0.075 wt% HF.

21. The method of claim 18, wherein the ozone water comprises about 5 to about 150 ppm ozone.

22. The method of claim 21, wherein the ozone water comprises about 15 to about 30 ppm ozone.

23. The method of claim 18, wherein in step (iii) the semiconductor device is dipped for a period between about 1 and about 30 minutes.

24. The method of claim 23, wherein the semiconductor device is dipped for a period of about 15 minutes.

25. The method of claim 18, wherein in step (ii) the HF and ozone water are mixed to form a uniform solution by circulation.

26. The method of claim 25, wherein the HF and ozone water are circulated by a pump.

27. The method of claim 26, wherein the HF and ozone water are circulated by flowing the HF and ozone water from an inner bath to an outer bath and pumped back into the inner bath.

28. The method of claim 18, whereby damaged layers and polymer residue are removed from the semiconductor device.

29. A method of cleaning a semiconductor device comprising the steps of:

(i) introducing HF and ozone water into a vessel to form a solution of HF and ozone water;

(ii) mixing the HF and ozone water in the vessel to form a uniform solution of HF and ozone water;

(iii) dipping a semiconductor device in the vessel containing the uniform solution of HF and ozone water; and

(iv) introducing ozone water into the vessel to replace the solution of HF and ozone water in the vessel.

30. The method of claim 29, wherein the solution comprises about 0.034 to about 0.077 wt% HF.

31. The method of claim 30, wherein the solution of HF and ozone water comprises about 0.035 to about 0.075 wt% HF.

32. The method of claim 29, wherein the ozone water comprises about 5 to about 150 ppm ozone.

33. The method of claim 32, wherein the ozone water comprises about 15 to about 30 ppm ozone.

34 The method of claim 29, wherein in step (iii) the semiconductor device is dipped for a period between about 1 and about 30 minutes.

35. The method of claim 34, wherein the semiconductor device is dipped for a period of about 15 minutes.

36. The method of claim 29, wherein in step (iv) ozone water is flowed into the vessel thereby causing an overflow of the solution of HF and ozone water out of the vessel.

37. The method of claim 36, wherein the ozone water is flowed into the vessel thereby causing the overflow of the solution of HF and ozone water out of the vessel for a period between about 1 and about 30 minutes.

38. The method of claim 37, wherein the period is about 20 minutes.

39. The method of claim 29, wherein in step (ii) the HF and ozone water are mixed to form a uniform solution by circulation.

40. The method of claim 39, wherein the HF and ozone water are circulated by a pump.

41. The method of claim 40, wherein the HF and ozone water are circulated by flowing the HF and ozone water from an inner bath to an outer bath and pumped back into the inner bath.

42. The method of claim 29, whereby damaged layers and polymer residue are removed from the semiconductor device.

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